

REMARKS

Claims 49-68 were presented for examination, and were rejected. The Applicants are now filing a request for continued examination, and request entry and consideration of the above claims.

Claims 49-51 and 59-61 have been amended to further define the particles being manipulated. This is done to ensure consistency with the priority document, since no rejection based on that term has been raised. The term microparticle is defined in the specification, and is thus clear to one reading the specification, and it clearly falls within the scope of the term ‘particle’ that has been replaced. Accordingly, it raises no new issues, and it is fully supported by the specification. The Examiner appears to suggest such an amendment in the last Office Action, indicating that foreign priority would be granted for claims directed to ‘target molecules linked to microbeads;’ the term microparticles is used here instead of microbeads because it is more consistent with the terminology used throughout the instant specification—and also with the terminology used in the priority document. The amendment is supported by the specification and adds no new matter. The applicants respectfully request entry of the amendment and reconsideration in view of the following remarks.

Rejection under 35 USC 112

Claim 49 was rejected as allegedly indefinite because it recites “an electromagnetic chip comprising one or more microelectromagnetic units on or within said electromagnetic chip.” According to the Examiner, “It is unclear whether the electromagnetic chip is actually just a substrate, or if it also requires one or more micro-electromagnetic units on or within or partially within in order to be considered an electromagnetic chip, or if there are additional undisclosed elements that would render the electromagnetic chip an electromagnetic chip. Further clarification would be appreciated.”

The applicant traverses this rejection. The Applicants have used this term throughout the specification, and read in view of the specification it would be clear to one of ordinary skill what the

‘electromagnetic chip’ is. For example, at page 19, the specification explains that an electromagnetic chip is “a chip that includes at least one electromagnetic unit, such as a microelectromagnetic unit.” From this, it seems clear that “electromagnetic chip” refers to a chip that includes at least one electromagnetic unit, which can be on, partially in, or in the chip; and the claim requires a chip with a microelectromagnetic unit on, partially in, or in the chip.

It is unclear what “additional undisclosed elements” the Examiner has in mind, since the specification provides an express definition of this term that does not appear to require additional elements, and the language of the claim is consistent with that definition. It is noted, however, that the description of the chip in the claim as one “comprising one or more micro-electromagnetic units on or within or partially within said electromagnetic chip” *permits* the presence of other elements, but does not require them. The term at issue is clear in view of the specification. Accordingly, withdrawal of this rejection is respectfully requested.

Rejection under 35 USC 102

The claims were rejected as allegedly anticipated by Burdon, et al., U.S. 6,570,830. The Applicants demonstrated in the previous response that the application properly claims priority to a Chinese application that antedates Burdon. The Examiner nevertheless maintained a rejection of all claims as allegedly anticipated by Burdon, arguing as follows:

...although applicant has support in the foreign priority papers for the specific method of manipulation of molecules linked to magnetic microbeads, applicant does not have support for the broader genus of manipulating all magnetic particles. As a result the current claims, specifically claim 49, would include embodiments (magnetic particles that are not target molecules linked to magnetic microbeads), and foreign priority is not granted to the claims as currently recited. It is noted, however, that upon amendment of the claims to be commensurate in scope with the invention disclosed in the foreign priority papers, foreign priority would be granted.

The applicants traverse this rejection.

First, the claims have been amended to refer to a ‘microparticle’ instead of a ‘particle’. It was not made clear in the Office Action that the rejection is in any way based on the use of the

term ‘particle’; indeed the basis for the rejection appears to be only an assertion that the claim is broader than the priority document because the particles in the priority document are allegedly linked to molecules when manipulated. That is not the case, as is discussed below. However, the amended term is believed to more precisely describe the invention and to potentially reduce issues for appeal in case the Examiner is indirectly referring to issues of enablement that have not been raised, and thus should not be the underlying basis for a final rejection.

Second, the test for claiming priority is not whether the claims ‘include embodiments other than those disclosed,’ which is the standard the Examiner appears to apply. According to the MPEP, “The foreign application must be examined for the question of sufficiency of the disclosure under 35 USC 112, as well as to determine if there is basis for the claims sought.” MPEP 201.15. Priority is thus properly claimed if the invention was enabled by the priority document, to satisfy the enablement requirement of 35 USC 112, and if a person of ordinary skill in the art would have recognized that the inventor was ‘in possession of the invention,’ to satisfy the written description requirement. In addition, the claims must find basis in the priority document; and it is well established that this does not require a verbatim antecedent basis for the claims presented.

In this case, the priority document describes both the device and methods of using it to manipulate various microparticles that are not limited to ones linked to a molecule, thus it satisfies the enablement requirement—and no question of enablement has been raised. In addition, it unequivocally discloses that the applicants were in possession of the concept of manipulating magnetic microparticles generally, by describing use of the chips to manipulate microparticles. It also provides extensive support for the claim scope sought.

The foreign priority paper expressly discloses suitable devices for use in the claimed methods: no question of enablement has been raised. The primary issue appears to be based on allegedly deficient written description for the invention or deficient support for the claims. However, the priority document describes “methods of utilizing these chips for directed manipulating [sic] micro-particles and micro-structures such as biomolecules and chemical reagents.” (Priority document’s Abstract, lines 1-4, emphasis added.) It further describes “methods

of utilizing the electromagnetic biochips for manipulating biomolecules, bioparticles, chemical reagents and microstructures...” (Priority document, first paragraph—emphasis added.)

Undeniably, the ‘microparticles’ and ‘microstructures’ mentioned here are not limited to those in the working examples, where the microparticles happen to be linked to molecules, etc. that the devices and methods can be used to manipulate—provided those moieties are coupled to a magnetic microparticle. Thus the priority document provides written description for a method of using the chip to manipulate microstructures or microparticles, without regard to anything that may or may not be linked to the microstructure / microparticle. It frequently mentions ‘biomolecules and chemical reagents’ as examples of items to be manipulated; clearly that is one important use for the chips that the applicants invented. From these general descriptions of uses for the chips described in the priority document, though, a person of ordinary skill would have understood that the inventors were in possession of the claimed invention, a method for manipulating magnetic particles using their electromagnetic chip.

The foreign priority document repeatedly describes methods for manipulating bioparticles or biomolecules that are linked to a magnetic microparticle. It is clear, inherent and undeniable, though, that any skilled reader would understand that the molecules, etc., that are manipulated in the working examples are manipulated by the manipulation of the magnetic microparticle—the target being carried is dragged along by the magnetic microparticle that it is attached to, and it is the magnetic microparticle that is being manipulated by the magnetic field produced by the electromagnetic chip. Thus these examples provide support for the method as claimed. Moreover, as demonstrated above, the priority document *expressly* discloses the concept of manipulating “micro-particles and micro-structures” with the devices. Its discussion of using the device to manipulate microparticles and microstructures provides written description for manipulation of magnetic microparticles as a class, not just those that are linked to bioparticles or biomolecules; and the examples provide enablement for these methods, which has not been questioned. Thus the priority document meets the requirements of 35 USC 112 and adequately supports claim 49. The presence of a molecule attached to the microparticle being manipulated does not change the fact that it is the *microparticle* that is being manipulated by the electromagnetic

chip in each case. Similarly, independent claim 59 is supported by the priority document's discussion of manipulating microstructures and microparticles, without limitation to those attached to a molecule to be manipulated.

Moreover, with respect to claims 50 and 60: the Examiner states that priority is recognized for claims commensurate in scope with the "invention disclosed" in the priority document. Claims 50 and 60 require the magnetic particle to "comprise at least one moiety linked to said magnetic particle." Thus the priority document discloses the invention of claims 50 and 60, which require the magnetic particle to be linked to a moiety. This claim is amply supported by the priority document, which describes "methods for manipulating biomolecules/bioparticles, chemical-reagent molecules or drug molecules." (3rd page of the description.) Here again, it describes methods of using the chips to manipulate magnetic particles linked to a variety of moieties, not just to molecules. Accordingly, these claims are not anticipated by Burdon because they are supported by the priority document even if that document is limited to magnetic particles linked to another moiety. It would be improper to limit the scope of claims to the embodiments in the priority document, when the document clearly teaches a person of skill in the art that various moieties can be manipulated when attached to a magnetic microparticle.

Accordingly, the priority document describes methods that are much broader than the manipulation of "molecules linked to magnetic microbeads," which the Examiner alleged was the entire scope of the priority document's disclosure. Indeed, it discloses manipulation of microparticles in general, and it repeatedly discloses manipulation of a variety of structures by linking them to a microparticle and using the chip to manipulate the microparticle—moiety assembly until the moiety is in a desired location, then cleaving the linker to separate the moiety from the microparticle. All of these examples are understood by the person of ordinary skill as descriptions of manipulating a microparticle, not a molecule attached to it; and none of these methods depend in any way on the molecule for manipulation, they rely only on the magnetic/paramagnetic microparticle.

The proper standard for recognizing priority has not been applied in this rejection. Under the proper standard, the Examiner must consider all that is described and enabled; and the priority document describes a much broader invention than "manipulation of molecules linked to magnetic microbeads." As demonstrated above, it provides 35 USC 112 support for claim 49 and claim 59, from which all of the other claims depend. Accordingly, the priority document has not been fairly considered as it supports the claims, and since the priority document antedates the only cited reference, the claims are patentable over all known art. Reconsideration in view of the amendment and all of the disclosures of the priority document is respectfully requested.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 471842001411. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

By: 

Michael G. Smith

Registration No.: 44,422
MORRISON & FOERSTER LLP
12531 High Bluff Drive, Suite 100
San Diego, California 92130-2040
(858) 720-5113